

I claim:

1. A lead, which can be used for electronic devices, where

- A) said lead may have different stiffness or resistance to flexing depending on its orientation,
- B) wherein,
- C) said **lead is formed**, such that when said lead is attached to said electronic device, it will present the least stiffness or resistance to flexing, in a direction similar to or close to the direction of thermal expansion or contraction of the elements in said device.

2. A leaded electronic device, comprising

- A) B) at least one lead, said lead extending from the body of said device, and
- B) where said lead may have different stiffness or resistance to flexing depending on its orientation,
- C) wherein,
- D) said **lead is oriented** in such a way, so as to present the least stiffness or resistance to flexing, in a direction similar to or close to the direction of thermal expansion or contraction of the elements in said device.

3. A leadframe,

- A) which could be incorporated in an electronic device,
- B) said leadframe comprising leads, protruding out of the main body of said leadframe
- C) wherein
- D) said leads are **twisted**,

- E) so that when said leads are folded to be perpendicular to said main body of said leadframe, or to said electronic device that will be incorporating said leadframe,
- F) said leads would end being oriented, so as to present the least stiffness or resistance to flexing, in a direction similar to or close to the direction of thermal expansion or contraction of the elements in said leadframe or said electronic device.

4. A **printed circuit board** or substrate, having

- A) **contact pads**, for mounting of electronic devices,
- B) having leads that are **oriented**, so as to present the least stiffness or resistance to flexing, in a direction similar to or close to the direction of thermal expansion or contraction of the elements in said system.
- C) wherein
- D) said **contact pads** are **configured so as to accept** the contact extremities of said oriented leads.

5. A **method for manufacturing leads** for electronic devices,

- A) by forming each one of said leads,
- B) so that when
- C) each said lead is situated in its operating position,
- D) each said **lead** would have an **orientation**, so as to present the least stiffness or resistance to flexing, in a direction similar to or close to the direction of thermal expansion or contraction of the elements in said electronic devices.

6. A method for making electrical **interconnection** between

- A) a first electronic component,
- B) a second electronic component, and where
- C) said first electronic component has at least one lead, and where
- D) said lead may have different stiffness or resistance to flexing, depending on its orientation, and where
- E) said second electronic component has at least one contact spot, and where
- F) said contact spot of said second electronic component generally corresponds to said lead of said first electronic component, and where
- G) said lead of said first electronic component is attached to said second electronic component at said contact spot,
- H) wherein
- I) said **lead is oriented** in such a way, so as to present the least stiffness or resistance to flexing, in a direction similar to or close to the direction of thermal expansion or contraction of the elements in said system.

7. A system for making electrical interconnection between

- A) a first electronic component,
- B) a second electronic component, and where
- C) said first electronic component has at least one lead, and where
- D) said lead may have different stiffness or resistance to flexing, depending on its orientation, and where
- E) said second electronic component has at least one contact spot, and where

- F) said contact spot of said second electronic component generally corresponds to said lead of said first electronic component, and where
- G) said lead of said first electronic component is attaching said first electronic component to said second electronic component at said contact spot,
- H) wherein
- I) said **lead is oriented** in such a way, so as to present the least stiffness or resistance to flexing, in a direction similar to or close to the direction of thermal expansion or contraction of the elements in said system.

8. A **connector or socket**, designed to work with electronic devices having oriented leads,

- A) said connector or socket comprising contact springs,
- B) Wherein
- C) said contact springs are **positioned at certain angles**, so that
- D) each said contact spring would **mate** at the appropriate angle or orientation, **with the oriented lead** corresponding to said contact spring.

9. A **method** for making electrical interconnection between

- A) a first electronic component, having at least one contact pad, and
- B) a second electronic component, also having at least one contact pad, said contact pads of said second electronic component generally corresponding to said contact pads of said first electronic component,
- C) using

D) connecting elements, each of which is substantially an elongated body, with two ends and a stem between said two ends,

E) said method comprising:

F) joining a first end of a first connecting element to a first contact pad on said first electronic component;

G) repeating this joining process with more such connecting elements, joining a first end of each subsequent connecting element to the subsequent contact pad of said first electronic component, until each of the desired number of contact pads of said first electronic component has a connecting element joined to it;

H) joining the second end of each said connecting elements to the corresponding contact pad on said second electronic component;

I) resulting in an arrangement where

J) connecting elements are crossing over between said first electronic component and said second electronic component, and connecting each contact pad of said first electronic component to the corresponding contact pad of said second electronic component;

K) wherein

L) said **connecting elements** comprise **means** to prevent any materials, which may be present during the joining process, which could be liquid or molten, from *migrating* away from the joints at said ends of said connecting elements towards the center of said connecting elements along the stem of said connecting elements, and/or from attaching themselves to said stems.

10. A **method** as in Claim 9, wherein

 said connecting elements are **curvilinear** or have a generally **arcuate shape**, and where

said connecting elements are amenable to be **parallel nested**, to achieve small effective center distances between said connecting elements and said contact pads of said first and second electronic components.

11. A **system** for making electrical interconnection between
 - A) a first electronic component, having at least one contact pad, and
 - B) a second electronic component, also having at least one contact pad, said contact pads of said second electronic component generally corresponding to said contact pads of said first electronic component,
 - C) said **system** comprising:
 - D) a first connecting element, which is substantially an elongated body, with two ends and a stem between said two ends, is joined to a first contact pad of said first electronic component;
 - E) more such connecting elements, where a first end of each subsequent connecting element is joined to the subsequent contact pad of said first electronic component, until each of the desired number of contact pads of said first electronic component has a connecting element joined to it;
 - F) the second end of each said connecting elements is joined to the corresponding contact pad on said second electronic component;
 - G) resulting in an arrangement where
 - H) connecting elements are crossing over between said first electronic component and said second electronic component, and connecting each contact pad of said first electronic component to the corresponding contact pad of said second electronic component;
 - I) wherein

J) said **connecting elements** are prepared in a way to have **means** to prevent any materials, which may be present during the joining process, which could be liquid or molten, from *migrating* away from the joints at said ends of said connecting elements towards the center of said connecting elements along the stem of said connecting elements, and/or from attaching themselves to said stems.

12. A system as in Claim 11, wherein

 said connecting elements are **curvilinear or have a generally arcuate shape, and where**
 said connecting elements are amenable to be **parallel nested**, to achieve small effective center distances between said connecting elements and said contact pads of said first and second electronic components.

13. A **carrying wafer**, comprising

 a slab of material, of sufficient integrity, to hold connecting elements together as a bundle and maintain and control the distance between any two said adjacent connecting elements equal to a corresponding distance between contact pads of electronic components intended to make physical contact during a joining process with said connecting elements,

 wherein

 said **connecting elements** are prepared in a way to have **means** to prevent any materials, which may be present during said joining process, which could be liquid or molten, from *migrating* away from the joints at said ends of said connecting elements towards the center of said connecting elements along the stem of said connecting elements, and/or from attaching themselves to said stems.